

THE CLAIMS:

The following listing of claims replaces all prior versions and listings of claims in the present application. The listing includes no claim amendments, and is provided for the Examiner's convenience:

Claim 1 (previously presented): A direct current motor comprising:  
a stator with 2P poles;  
a rotor core, including a core of ferromagnetic material having a number slots S and a number of teeth S separated from a stator core by an airgap;  
a commutator with a number of segments greater than the number of rotor slots S;  
a concentrated winding rotor, having a plurality of simple non-overlapping coils of insulated wire mounted on a same rotor tooth, with each coil wound around a single tooth only, and with a terminal of each of the coils being connected to different segments of the commutator.

Claim 2 (previously presented): The direct current motor as in claim 1, wherein each pole comprises a permanent magnet mounted on a surface of a core of a ferromagnetic material.

Claim 3 (original): The direct current motor as in claim 1, wherein each pole comprises a coil wound around a tooth made of a ferromagnetic material.

Claim 4 (previously presented): An AC commutator (Universal) motor comprising:

a stator with 2P poles, each pole comprising a coil wound around a tooth of a core of a ferromagnetic material;

a rotor core including a core of ferromagnetic material having a number of slots S and a number of teeth S separated from a stator core by an airgap, the stator and the rotor core comprising a magnetic circuit;

a commutator with a number of segments Z bigger than the number of rotor slots S;

a concentrated winding rotor having a plurality of simple non-overlapping coils of insulated wire mounted on a same rotor tooth, with each coil wound around a single tooth only, and with a terminal of each of the coils being connected to different segments of the commutator.

Claims 5-14 (canceled)

Claim 15 (previously presented): A direct current motor as claimed in claim 1, with part of a magnetic circuit realized with a soft magnetic composite made of metal powder.

Claim 16 (previously presented): A direct current motor as claimed in claim 15, wherein the stator comprises teeth and a center part of each rotor tooth or each stator tooth under the coils has a rounded, oval, or circular profile, to reduce a risk of destruction of insulation by a sharp bending of windings of the coils, and to maximize a copper filling factor.

Claim 17 (previously presented): A direct current motor as claimed in claim 15, wherein:

an axial length of a center part of teeth under the coils is same as an axial length of a yoke; and

an axial length of tooth tips is higher than an axial length of the teeth.

Claim 18 (previously presented): A direct current motor as claimed in claim 17, wherein end-windings are inserted partially or completely under the tooth tips.

Claim 19 (previously presented): A direct current motor as claimed in claim 17, wherein the commutator and brushes are partially or completely inserted under the tooth tips to reduce a total axial length of the motor.

Claim 20 (previously presented): A direct current motor as claimed in claim 15, wherein the teeth are not skewed and some tooth tips are skewed to reduce variations magnetic reluctance or a cogging torque.

Claim 21 (original): An AC commutator (Universal) motor as claimed in claim 4, wherein a part of magnetic circuit is realized with a soft magnetic composite made of metal powder.

Claim 22 (previously presented): An AC commutator (Universal) motor as claimed in claim 21, wherein a center part of each rotor tooth or each stator tooth under the coils has a rounded, oval, or circular profile, to reduce a risk of destruction of insulation by a sharp bending of windings of the coils, and to maximize a copper filling factor.

Claim 23 (previously presented): An AC commutator (Universal) motor as claimed in claim 21, wherein:

an axial length of a center part of teeth under the coils is same as an axial length of a yoke; and

an axial length of tooth tips is longer than an axial length of the teeth.

Claim 24 (previously presented): An AC commutator (Universal) motor as claimed in claim 23, wherein end-windings are inserted partially or completely under the tooth tips.

Claim 25 (previously presented): An AC commutator (Universal) motor as claimed in claim 23, wherein the commutator and brushes are partially or completely inserted

under the tooth tips to reduce a total axial length of the motor.

Claim 26 (previously presented): An AC commutator (Universal) motor as claimed in claim 21, wherein the teeth are not skewed and some tooth tips are skewed to reduce variations magnetic reluctance or a cogging torque.

Claim 27 (previously presented): The direct current motor as in claim 1, wherein a plurality of equalizer connections are added on the commutator to reduce a number of brushes.

Claim 28 (previously presented): An AC commutator (Universal) motor as in claim 4, wherein a plurality of equalizer connections are added on the commutator to reduce a number of brushes.